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GENERAL NOTES.

GEOGRAPHY AND TRAVELS.[1]

ASIA—*The Rivers of the Punjab.*—An account of the rivers of the Punjab, by Gen. R. Macagan, occupies the first place in the November issue of the Proceedings of the Royal Geographical Society. Though Punjab means "five waters," the more ancient name was the land of the seven rivers, the Indus on the one side, and the Saraswati on the other, being added to the Jhelum, Chenab, Ravi, Beás, and Sutlej. The Saraswati rises in the low outer hills of the Himalayan mountains, and is now an unimportant river, except in the season of flood, yet it is described in the ancient writings of the Hindus as a mighty river like the others. But the Punjab was the tract first occupied by the Aryan immigrants from the north, and it appears more probable that the ideas of the people concerning the river changed when they knew it

[1] This department is edited by W. N. LOCKINGTON, Philadelphia.

better, and had advanced to the Jumna and the Ganges, than that the river should have altered so greatly. Yet the disappearance of the forests marks some diminution in the water-supply. Later writings, about the sixth century B. C., state that the Saraswati sinks into the earth, and gives the Ganges and Jumna at their confluence. This is probably a fable to save the credit of a sacred river. The Sutlej and the Indus rise on opposite sides of Mount Kailas, at elevations of about 15,200 and 18,000 feet respectively, and both flow north-west for a considerable distance, and then turn to the south-west, the Indus taking the wider sweep, and enclosing, between itself and the Sutlej, a broad tract containing the other four rivers and their drainage basins. Much of the upper courses of all these rivers is torrential, but the Indus runs with a gentle and winding current through Ladak at a height of 11,000 feet, and the lovely valley of Kashmir is situated near the sources of the Jhelum, which is even there a large river, since several tributaries join at Islamabad, forty miles above Srinagar. At Baramula, the Jhelum leaves Kashmir, and falls thirty-five feet per mile for seventy-five miles, and then twenty-one feet per mile to the Punjab plains. The earliest of the metrical histories of Kashmir state that the valley was once a lake, and that a powerful sage cut the gap at Baramula. It is not impossible that it was the work of man. Seventy-five miles of the upper course of the Beas have a fall of 125 feet per mile. The courses of all these rivers after reaching the plains of the Punjab are, like those of the Mississippi and other rivers which have flood plains, subject to much disastrous change. The rainfall of the higher portions of the Punjab, where the rivers leave the hills, varies from thirty-four to forty-eight inches. At fifty miles from the hills only sixteen to twenty-four inches of rain falls, and at 100 miles, but ten to twelve inches. Where the rivers unite, no more than six inches of rain falls annually, and still less than this visits the desert plain of Sind, through which the mighty Indus, after receiving the five rivers, flows to the ocean. The five rivers unite before reaching the Indus, and the united stream, called the *Panj-nad,* or five streams, is at the junction more than twice the width of the Indus, but much shallower. The discharge of the Panj-nad at the low season, is estimated at 69,000 cubic feet per second, that of the Indus at 92,000. The flood discharge below the junction is about 380,000 cubic feet. A very large amount of water borne down by these rivers sinks into the ground, and forms an underground reserve of water, which even in the rainless region round near the meeting of the five rivers is not more than twenty-four feet below the surface.

Some Himalayan Peaks.—According to notes communicated by Lieut. Col. H. C. B. Tanner to the British Association, there are no large glaciers on the north-east or shady side of Kinchinjinga, nor does Mt. Everest seem to have noteworthy glaciers. Kabru is

really a snow-clad table-land 24,000 feet high. Observations of Mt. Everest have to be taken from a distance of eighty miles, on account of the jealousy of the Nepalese government. As it is surrounded by peaks not greatly inferior in height, its aspect is not imposing, and the Tibetans look upon some other peak to the north or north-west as higher. The following table, given by Col. Tanner, shows the height above the sea of some of the highest Himalayan peaks, as well as the height of slope actually exposed to view.

	Height.	Height of slope exposed.
Everest (or Gaurisankar)	29,000	8,000
K^2 (Kashmir boundary)	28,278	
Makalu (No. XIII)	27,800	8–9,000
Nanga Parbat	26,600	23,000
Tirach Mir (Hindu Kush)	25,400	17–18,000
Rakaposhi (Gilgit)	25,560	18,000
Kinchinjinga	28,160	16,000

Mont Blanc, though only 15,781 feet high, presents a face of 11,500 feet.

M. Potaneri's Journey.—M. Potaneri has made interesting discoveries in Northwest China. The broad valley of the Tchitai, a tributary of the Hoang-ho, is thickly peopled by Salars (Turcomans), its upper part by Tanguts. The right bank of the Hoang-ho itself, near San-chuan, is also peopled by Salars. They maintain their Turkish language, and the Mussulman religion, but their mosques are Chinese in style, and the men wear a Chinese dress. The women wear broad trousers, an overcoat with sleeves, and a pointed bonnet. Above the gorge near San-chuan (excavated in the red sandstone and conglomerates which underlie the Loess), is a depression seven miles long, peopled exclusively by Mongolian Shirongols, who seem to belong to the same stem as the Dalda of Lake Kuku-nor. The Chinese call both Tu-jen. They speak Mongolian, with some Chinese words, and dress like Chinese, but the women wear trousers like the Salar women. Around He-cheu they are Mussulmans, but Buddhism and the teachings of Confucius are followed by some.

Asiatic News.—M. Ivanoff has recently described in the *Izvestia*, the remains of Akhyr-tash, at the foot of the Alexander range in Turkestan. The area covered by the remains is 20,900 square yards, and the stones weigh each about a ton. Some stone idols and a burial-ground on the Tssyk-tul are also described. ——The Kampti villages on a tributary of the Irawadi, visited by Wilcox, sixty years ago, have again been visited by Col. Woodthorpe. Only a very ordinary road is required to open up a trade with these people from Assam.——Mr. Gardner considers Mukden, the capital of the Mongolian province of Fêng-Tieng, as one of the finest and most prosperous cities of the Chinese empire. The population of the province is chiefly Chinese. In 1865 it was a neutral belt, which neither Chinese nor Coreans

were allowed to colonize. Since 1876 hundreds of thousands of emigrants have arrived from Shantung and Chihli, and have broken up and cultivated land on both sides of the Great Wall or Palisades. The site of Newchang, the port of Fêng-Tieng, was in the seabed up to the beginning of this century. The province of Korin contains a large community of Coreans.——About 48,000 square miles, or 5½ per cent of British India, has been reserved as forests. Some are upon the plains or on the low ranges of hills rising from them, some on the lower or middle slopes of the Himalayas to an elevatlon of 8000 to 9000 feet. A forest survey is in progress, largely in the lands of native surveyors trained in the Forest Survey Department. A school of Indian forestry has been established, in which natives are trained to be conservators and rangers.

AMERICA.—*The Claims of France in Brazil.*—M. Condreau calls attention in a recent issue of the *Revue Scientifique* to the undetermined portion of French Guiana. Upon maps the river Oyapock is shown as the south-eastern boundary of French Guiana, separating it from Brazil, while the southern boundary is formed by the Tumac-Humac mountains. It appears, however, that France has at various times occupied and abandoned the territories between the Oyapock and the Amazons, and that the peoples of that region live actually independent of either Brazil or France. M. Condreau states that Brazil once offered to divide this territory, but that France claimed two-thirds. In any case, the country in dispute is worth having, since it is not an unhealthy marsh like Guiana itself, but an elevated healthy prairie country tilled for colonization. The region offered to France in 1856, between the Oyapock and the Carsevesme, is as large as three French departments; while that claimed by France, ending at the Tartarougal, contains twice the area.

M. Condreau argues for the acceptance of the Brazilian proposition. Arguments about rights make it clear to a Frenchman that France ought to own all the country north of the Amazon as far as the Rio Negro, and equally clear to a Brazilian that Brazil owns to the Oyapock. Diplomacy has tried to settle the matter for two hundred years. Most of this territory has been settled by Brazilians, but the coast and prairies back of it are occupied only by Indians. He proposes a Franco-Brazilian commission to settle the matter. The first need is a good map. The seaboard is subject to continual change, especially between the Mapa and Cabo Rase de Norte. During the last forty years much alluvial land has been made by the rivers. Of the interior country, and of the Island of Maraca next to nothing is really known.

American News.— Lieutenant Cantwell has explored the river Futnam to its source, 520 miles from the mouth. It rises in four large lakes; the largest is about 153° W. long. and 67° N. lat.

He found that there was an easy communication between Kotzebue sound and the Yukon.——Mr. B. McLenegan, with one sailor, ascended in a canoe the river Nortauk, which enters the Arctic ocean at Hotham inlet, for a distance of 400 miles. Here one of the head streams of the river issued from a small lake. No inhabitants were met with. The course of the Nortauk is entirely in the Polar circle, and the lake in which it rises is the most northerly inland point yet reached by white men in Alaska.—— A rich deposit of coal of good quality has been found at Cape Lisburne (69° 37′ N. lat.).——From the observations made by the *Alert*, it appears that Hudson's bay and strait are navigable from July to October, and that the climate of the Hudson's bay coast is less severe than that of Northwest Canada.——Lieut. Allen has returned to San Francisco from an exploration of the Copper river, which he ascended as far as the mountain range of Alaska. He then crossed the mountains on snow-shoes, and reached the sources of the Tennah, which he followed 800 miles to its junction with the Takon. The latter he descended to its mouth, a distance of 400 to 500 miles.——M. Thonar has left Buenos Ayres to complete his explorations on the Pilcomayo. ——Captain L. Gray found, during his visit to the east coast of Greenland last summer, that the land ice was sufficiently open in August to afford passage for a steamer. He sailed along the coast from Shannon island to the entrance of Scoresby sound. ——J. Hughes and F. Dunsmuir have returned to Juneau, Alaska, from the headwaters of the Yukon. Good placers were found, mostly in British territory.——The governments of the Argentine confederation and of Brazil have agreed to a joint exploration of the neutral or disputed ground on the western limit of the Brazilian province of Sta. Cateria, situated between the Uruguay and Iguassu rivers. An old treaty between Spain and Portugal fixed upon two rivers, the Peperi and San Antonio, the first flowing into the Iguassu, the second southward to the Uruguay, as the boundary; but the difficulty is to identify the rivers so called in the treaty.——Lieut. Greely, in a recent lecture at Dundee, stated that the temperature observations taken during his stay in Grinnell sound confirmed the expectation that it had the lowest mean temperature known, about 4° F. below zero. The discovery of coal at various points showed how climate had changed. He doubted the existence of a palæocrystic sea. The floe bergs from 100 to 1000 feet thick, are, in his belief, detachments of slowly moving ice-caps from a land near the pole. In Kane sea he visited a floe berg a third of a mile wide and a fifth to a sixth of a mile thick, and found upon it two valleys thirty feet deep, along which were fully 100 large stones polished and worn smooth—proofs of the glacial and terrestrial origin of the floe.

AFRICA.—*Capello and Ivens' Journey.*—Messrs. Capello and Ivens reached Lisbon on Sept. 17th, after traveling 4200 geographical miles in Africa during fifteen months. From the Portuguese territory they proceeded towards the Cubango, as far as the lower part of the Tucussu, where the barrenness of the region, intersected by water-courses and marshes, forced them to turn northwards through a district infested by the tsetse. Sixteen of the party died of tsetse-bites, besides cattle and dogs. Sixty-two men perished during the fifteen months. The principal results of this journey are the rectification of the course of the Cunene, the determination of the Quarrai and its union with the Cubango, as well as the interesting hydrography of the Handa and the Upper Ovampe; the exploration of the Cubango between 15° and 17° S. lat., and of its principal eastern affluents; the investigation of the basin of the Upper Zambezi to Libonta, and the upper and middle course of the Cabompo; the discovery of the Cambai, an eastern branch of the Upper Zambezi; the exploration of the sources of the Lualaba and Luapula, and of the northern tributaries of the Middle Zambezi; and the identification of the Lœngue with the Kafuke. The great lake Bangweolo of modern maps is really composed of two smaller lakes, Bangweolo to the north, and Bemba to the south, separated by a marshy belt. This agrees with M. Giraud's account.

GEOLOGY AND PALÆONTOLOGY.

THE STERNUM OF THE DINOSAURIA.—The discussion which has been going on between palæontologists, as to the nature of the sternum of the Dinosauria, and the presence or absence of clavicles in this order, induces me to present some evidence which bears distinctly on the question. The first point to be noticed is the pair of bones represented in Fig. 1, which belongs to the skeleton of *Diclonius mirabilis* Leidy.[1] It is evident that these resemble very nearly the parts discovered by Dollo in the *Iguanodon bernissartensis*, in place, and referred by him to the sternum.[2] Not having been present at the exhumation of the Diclonius, I cannot give their exact relations. The positions in which the bones were found by Dollo in the Iguanodon renders it highly probable that they are the separate pleurosteal elements of the sternum. The long processes will then be posterior, and will have given attachment to ribs. Such a type of sternum is, however, unique, and requires good evidence before admission into our descriptions.

Important evidence on this point is furnished by the probable corresponding element in the Laramie dinosaurian, the *Monoclonius crassus* Cope.[3] This is a quadrupedal form, about as large

[1] Proceedings Academy, Philadelphia, 1883, p. 97.

[2] Bulletin du Musée Royal d'Histoire Naturelle de Belgique, 1882, p. 208.

[3] Proceedings Academy, Philadelphia, 1876, October; Pal. Bulletin, No. 22, p. 8.